

WE CLAIM:

1. In a hydraulic system having a return line, the improvement comprising:

a back-up system to operate said hydraulic system in the event of a detected leak of fluid from said system, including:

5 a source of auxiliary fluid;

a pump connected to said source of auxiliary fluid and said hydraulic system return line for supplying auxiliary fluid to said hydraulic system return line; and

a switch for selectively operating said pump means.

2. In the back-up system of claim 1, further comprising:

a one-way check valve between said pump and return line for directing auxiliary fluid from said auxiliary fluid source towards said return line.

3. In the back-up system of claim 1, wherein said source of auxiliary fluid is a reservoir of fuel.

4. In the back-up system of claim 1, wherein said source of auxiliary fluid is a reservoir of potable water.

5. In the back-up system of claim 1, further including a fluid filter between said auxiliary fluid source and said pump.

6. In the back-up system of claim 1, further including a fluid filter between said auxiliary fluid source and said pump.

7. In an aircraft hydraulic system having a return line, the improvement comprising:

a back-up system to operate said hydraulic system in the event of a detected leak of fluid from said system, including:

5 a source of auxiliary fluid;

a pump connected to said source of auxiliary fluid and said hydraulic system return line for supplying auxiliary fluid to said hydraulic system return line;

a switch for selectively operating said pump means; and

10 a one-way check valve between said pump and return line for directing auxiliary fluid from said auxiliary fluid source towards said return line;  
said source of auxiliary fluid being a reservoir of aircraft fuel.

8. In the back-up system of claim 7, further including a fluid filter between said auxiliary fluid source and said pump.

9. In an aircraft hydraulic system having a return line, the improvement comprising:

a back-up system to operate said hydraulic system in the event of 5 a detected leak of fluid from said system, including:

a source of auxiliary fluid;

a pump connected to said source of auxiliary fluid and said hydraulic system return line for supplying auxiliary fluid to said hydraulic system return line;

10 a switch for selectively operating said pump means; and

a one-way check valve between said pump and return line for directing auxiliary fluid from said auxiliary source towards said return line;

said source of auxiliary fluid being potable water.

10. In the back-up system of claim 9, further comprising:  
a fluid filter between said auxiliary fluid source and said pump.
11. A method of operating an aircraft hydraulic system in the event of failure of said system including the steps of:  
providing a source of auxiliary fluid;  
pumping said source of auxiliary fluid into said hydraulic system  
5 line upon detecting a leak in said hydraulic system; and  
selectively controlling the pumping of the auxiliary fluid into said hydraulic system.
12. The method of claim 11, wherein said source of auxiliary fluid is a reservoir of aircraft fluid.
13. The method of claim 11, wherein said source of auxiliary fluid is a reservoir of potable water.
14. The method of claim 12, further including the step of filtering said auxiliary fluid before pumping said fluid into the hydraulic system return line.
15. The method of claim 14, further including the step of blocking the reverse flow of said pumped auxiliary fluid.